Assisted Living

Area Overview

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Scottish Enterprise

Assisted Living in Context

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The Changing Face of Healthcare

- Healthcare is changing rapidly, dramatically and globally.
- Changes in lifestyle and the global “greying” of the population mean that chronic and debilitating diseases will increasingly rise in number posing problems not just for affected individuals but for society as a whole.
- However, while healthcare demands costs rise exponentially, public and private finances are under pressure. The traditional model of healthcare (or treating diseases on their manifestation) is rapidly becoming unsustainable.
- **This has triggered an ongoing shift in emphasis in healthcare systems from diagnosis and treatment to the maintenance of health and wellbeing.** While the needs for this shift are well accepted its concrete application is slow.
- **In parallel, there is an increased focus on keeping people with long term/chronic conditions living well and independently for as long as possible.**
- This creates new opportunities in thematic areas of Wellness and Assisted Living & Telehealth.

Preserving fitness and health
Prevention rather than cure
Better quality of life in older age
Independence for the elderly and infirm
Reduction of healthcare and social care costs

Emerging Opportunities

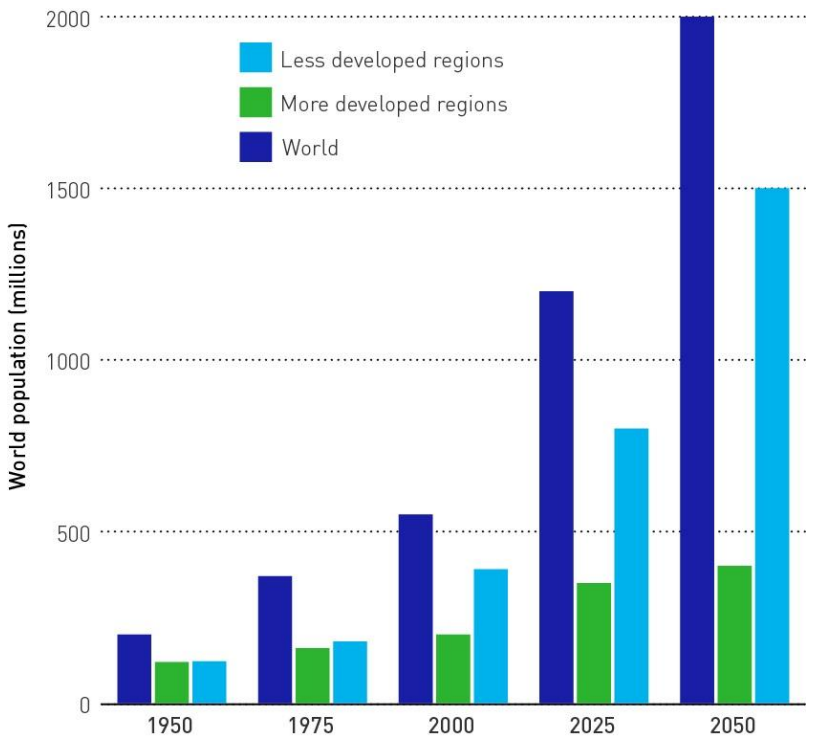
Wellness

Assisted Living & Telehealth

Drivers: The Ageing Global Population

- The global population aged 60 years and over is projected to **more than triple to reach 2 billion** by 2050. By then, 1 in 5 people will be over 60 years of age.[1]
- People over 80 years will account for more than 4% of the world population by 2050 compared to 1% today.[1]
- The UK Dept of Work and Pensions recently reported that babies born today have a 1:3 or 1:4 chance of reaching 100 years of age.
- The ageing population is **not just a feature of the developed West**: By 2000, China already had almost three times the number of people over 60 years of age than in the US. By 2050, there will be more elderly Chinese than the current US population.[1]
- In general, illness and disability increases with age. This surge in the older generation will generate both challenges and opportunities for business.

Population aged 60 or over: world and development regions, 1950-2050[1]



1. United Nations Population Diviision World Population Ageing 1950-2050 http://www.un.org/esa/population/publications/worldageing19502050/

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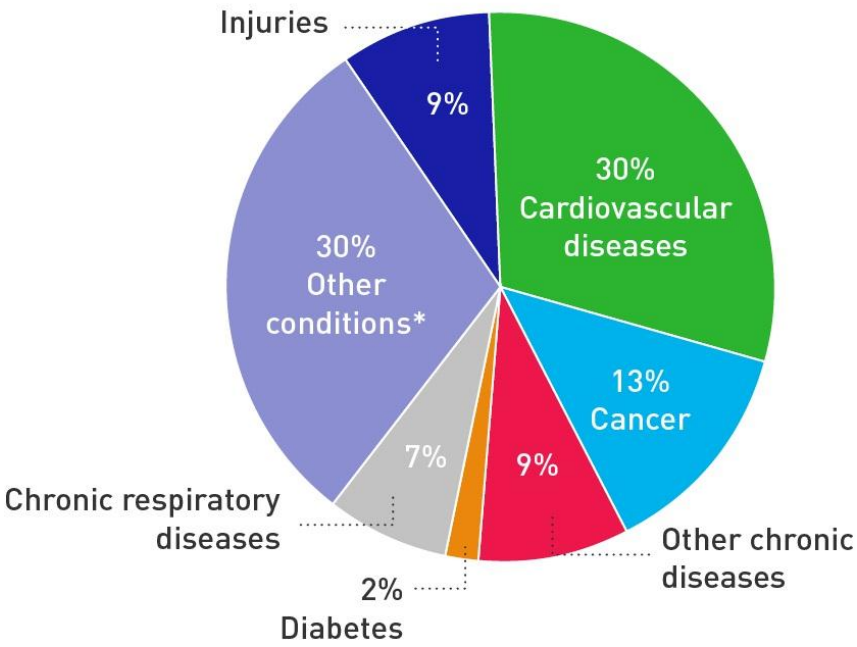
Drivers: The Non-Communicable Disease Epidemic

- Diet and lifestyle all contribute to the increasing rates of the so-called **chronic non communicable diseases (NCDs)** such as cardiovascular disease, cancers, diabetes, chronic respiratory illness and mental illness.
- The consumption of energy-rich but nutrient-deficient foods, sedentary and high-stress jobs, lack of exercise, and consumption of alcohol and tobacco smoking all contribute to the incidence of NCDs.
- In 2005, 133 million Americans – almost 1 out of every 2 (45%) adults – had at least one chronic illness and nearly 1 in 4 had two or more (see right).[1]
- The WHO recently reported that NCDs cause **36 million (63%) of the 57 million deaths annually and (perhaps surprisingly) 80% of these are in developing regions**.[2]

NCDs constitute more than 60% of deaths worldwide (WHO 2005 data)

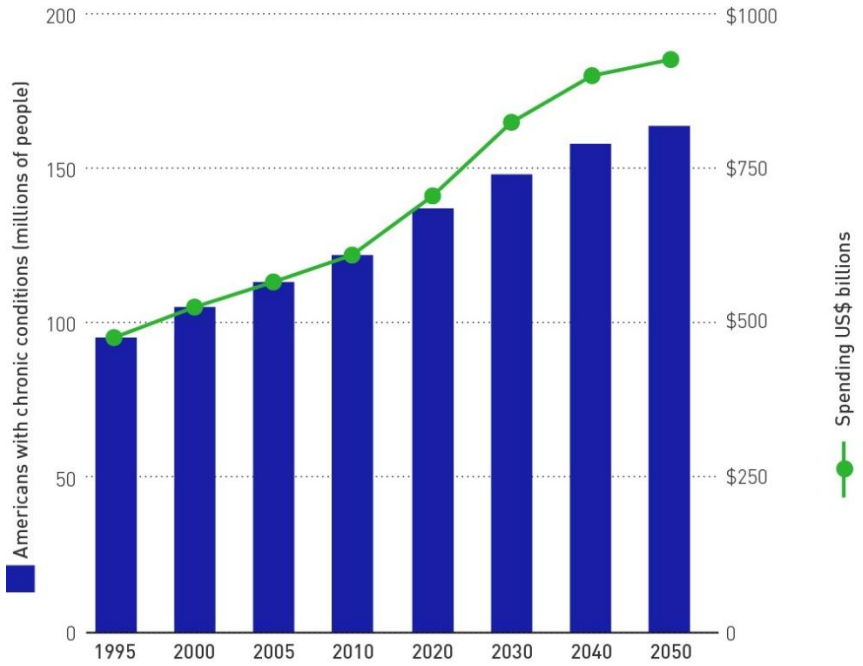


1. Anderson G. Chronic Conditions: Making the case for ongoing care. Johns Hopkins University. Nov 2007
2. United Nations NCD Alliance 2011 http://www.who.int/features/factfiles/noncommunicable_diseases/en/index.html

Drivers: The Need to Manage Cost

- Management of chronic disease now accounts for 75% of total healthcare spending.[1] As the patient population grows, healthcare will become stretched to breaking point.
- **The World Economic Forum identified NCDs as a severe threat to economic development and put a $30 trillion price tag on them over the next 20 years.**[2]
- Only a small fraction of healthcare budgets is spent on prevention and yet here is where substantial savings could be made. A recent US study suggest that an investment of $10 per person per year in healthy living programmes could save $16 billion annually within 5 years.[3]
- By encouraging people to live healthier lives, and to more swiftly diagnose and manage conditions, quality of life can be improved and cost minimised.

The increasing prevalence and cost of chronic disease in the US[1]



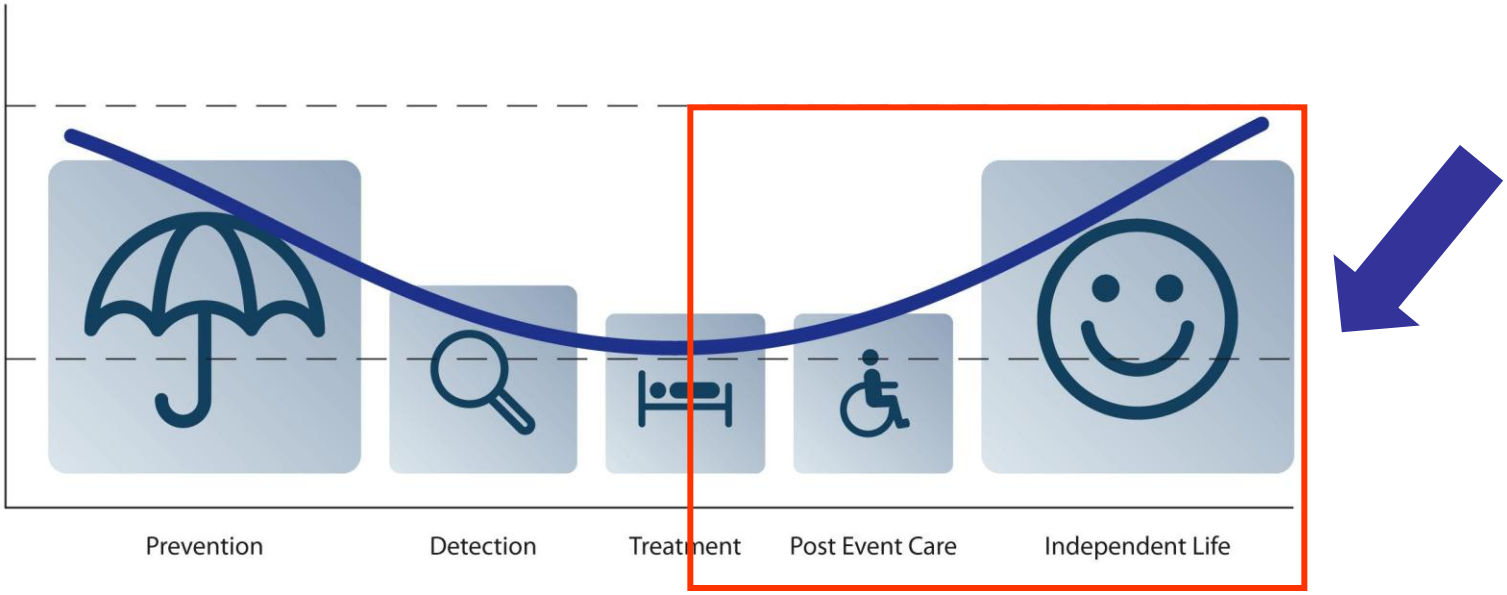
"NCDs are a global risk equal in cost to the current global financial crisis."
World Economic Forum 2011

1. Biotech 2011- Life Sciences. Annual Report. Burrill & Company
2. World Economic Forum The Global Economic Burden if Non-communicable Diseases Sept 2011
3. The Trust for Americas 2008 July Issue

A Continuum of Healthcare

- Healthcare provision can be seen as a continuum from the maintenance of good health, through prediction of risk, then the prevention, early detection, diagnosis, treatment and monitoring of disease. In more serious diseases and in ageing, the focus is on maintenance of independent living with long-term disability.

- Here we examine the second part of this process: **assisted living**. In a previous report we examined the first part of this process, the maintenance of health (aka Wellness).



Thanks to the Wellness and Health Innovation Centre for use of this diagram taken from Wellness Prevention and Detection, A WHI White Paper, June 2009

Needs of the Ageing and Chronically Ill In Context

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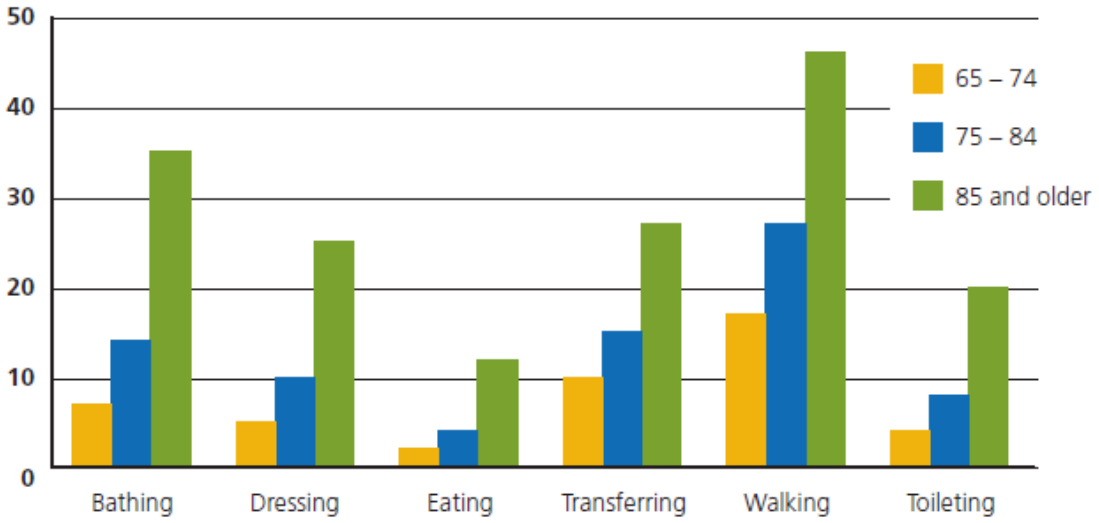
Challenges in Everyday Life Activities

- Products and services to assist the elderly or people suffering from chronic diseases and disabilities in living independently span several areas where these **people find themselves challenged in performing basic everyday life activities**.

Figure 1: Persons with Limitations in Activities of Daily Living by Age[12]



Source: *The MetLife Report on Aging in Place 2.0*, September 2010
http://www.dynamic-living.com/resources/mmi-aging-place.pdf

It is Not Only the Ageing

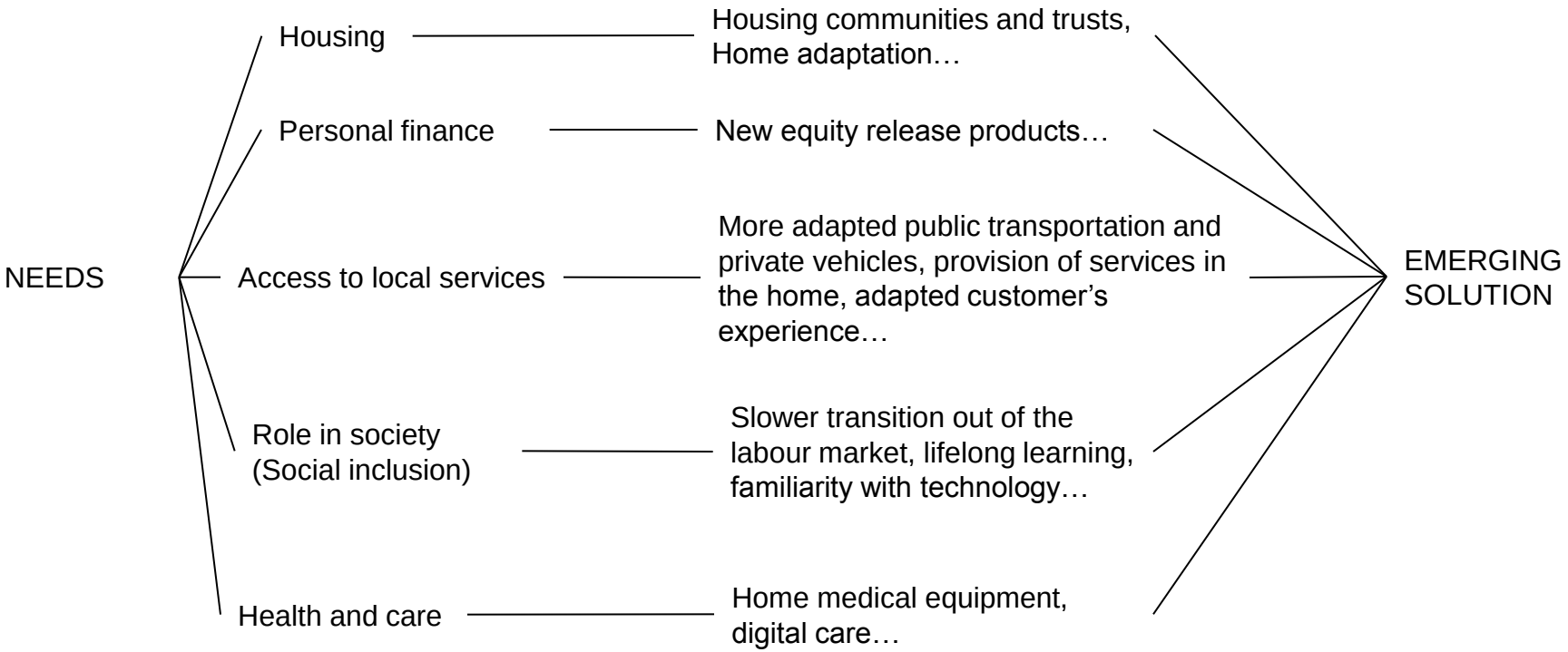
- While his section will focus mostly on the needs of the elderly as they are living with chronic conditions. it is however worth noting that lifestyle evolution (poor diet, lack of exercise…) is exposing an increasing number of young people to such chronic conditions. This is not only true in developed countries but also in the increasingly urban environments of low and middle income countries.
- For instance, according to the US Center for Disease Control: “The increased prevalence of obesity among adolescent girls may play a role in the 10-fold increase in type 2 diabetes among adolescents in the 1990s”.
- The old paradigm associating chronic diseases with the elderly is somewhat being challenged.
- Therefore it is worth keeping in mind that some of the needs and solutions described here also concern a growing younger segment of the population which also suffers from chronic diseases.

Assisted Living is Only a Piece of the Puzzle

- It is also worth remembering that **assisted living is only one aspect** of dealing with chronic conditions:
  - Prevention is also an essential piece as lifestyle has an influence on many chronic diseases. Smoking, poor diet, lack of exercise and immoderate alcohol consumption are among a series of factors that favour the development of chronic conditions such as a range of cancers and cardiovascular diseases.
  - The development of therapies and treatment to cure or manage these conditions is also an obvious key piece. This includes the development of new drugs, new treatment approaches such as surgery, radiation therapy but also regenerative medicine (dementia, chronic degenerative diseases…)
  - The development of diagnostics tools particularly for early diagnosis is also crucial to initiate treatment and/or life style changes as soon as possible and improve prognosis. This includes the discovery of biomarkers. For instance a number of dementia conditions are often hard to diagnose definitely in their early stages.

Assisted Living Needs and Emerging Solutions

- Deloitte suggested five key areas in which older people need specific support : housing, environment, personal finance, health and care and role in society[1]. A number of emerging solutions are beginning to address these needs.



[1]*Innovation that matters. How innovation is currently supported in an ageing society*, Deloitte, April 2009

Home Medical Equipment

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Monitors and Sensors - Market

- Global market for Home Monitoring devices[1]

Device	2010 ($M)	2015 ($M)	CAGR (2010-2015)(%)	Leading companies include:
Blood Glucose monitor[1]	6017	7208	4	Medtronic, DexCom, Abbott Laboratories, Roche, Lifescan
Blood pressure monitors[1]	980	1384	7	Omron, Microlife and A&D Medical
Peak flow (asthma) monitors[1]	29	69	19	Microlife, nSpire Health
Cholesterol monitors[1]	20	50	20	PTS Inc, Roche, Lifestream Technologies Inc
Home ECG monitors[1]	11	22	15	Omron, Amperor, PMS Instruments, Energy Lab
Device	**2009 ($M)**	**2016 ($M)**	**CAGR (2010-2016)(%)**	**Leading companies include:**
Blood coagulation monitors[2]	301	689	13	Roche, Alere, Nexus Dx

1 Source BCC Research
2 US and European markets:
- *US point of care testing market*, Frost & Sullivan, 2010
- *European point of care testing market*, Frost & Sullivan, 2010

Monitors and Sensors - Emerging Opportunities

- A major area of innovation concern the development of non-invasive sensors especially for:
  - **glucose level monitoring:** Several companies (Animas Technologies, Echo Therapeutics, CME Telemetrix Solianis Monitoring, ArithMed Gmbh) are developing non-invasive glucose monitors based on a range of technologies (low frequency electric signals, ultrasonic energy, light beams, impedance spectroscopy, iontophoresis, reading of retinal glucose levels…)
  - **Cholesterol level monitoring:** At least one company, PreMD has developed a non-invasive monitoring device to measures skin tissue cholesterol levels.

- Key issues with personal medical monitoring tools are that many people who acquire them do not have the discipline to use them regularly and/or keep a careful record of the data. There are opportunities to link these devices to other tools that will remind people (electronic calendars, email…) and to directly transmit results to health care providers.

- Also there are opportunities to develop inconspicuous sensors that better blend in people's usual environment. Examples of such sensors include:
  - weight and body fat monitors embedded in toilet seat (Matsushita),
  - bathroom mirrors using infrared technology to detect hair and skin problems (Matsushita),
  - bio-sensing textiles to monitor vital signs (Georgia Tech – SmartTex, Vivometrics).

Drivers and Restraints for Home Medical Equipment market

Drivers	Restraints
↑ Population growth ↑ Ageing population: new opportunities for business. This is an increasing market segment which represents 85% of the national wealth in the UK[1] ↑ More older people living in their own homes ↑ Physician attitudes towards home care ↑ Hospital and nursing home costs ↑ Emphasis on prevention (policies)	↓ Sometimes difficult to bring product to market: unclear boundary between health and social care makes it difficult for business to understand who the buyer is ↓ Getting through regulatory approval process when required ↓ Obtaining insurance coverage ↓ Accuracy, simplicity and price need to be demonstrated for adoption ↓ Limited consumer market

[1] Familly Spending: A report on the 2007 Expenditure and Food Survey, 2008. p130.

Fit with Government Agenda and Funding

- A wider use of home medical equipment is aligned with government goals at several levels:
  - Allowing people to remain in their home and live independently for as long as possible:

    "The Scottish Government wants people to be able to remain in their own homes, living as independently as possible for as long as possible." *Guidance on the Provision of Equipment and Adaptations*, December 1st 2009
  - Reducing healthcare costs by decreasing hospital stay through preventative care.
  - Increasing the quality of care by providing physicians with actionable information (home monitors and sensors).
- Also the sub-segment of the home medical market focusing on sensors is an integral component of digital healthcare which is the focus of the next section and an important area of interest for governments and funding organisations at the European, UK and Scottish levels.
- Further, it is worth emphasizing that homecare equipments such as sensors are important at several levels within the continuum of healthcare beyond the strict scope of this report.: These equipments are not only useful for monitoring existing conditions but also are being used for preventative care and maintenance of health and well being.

Digital Healthcare

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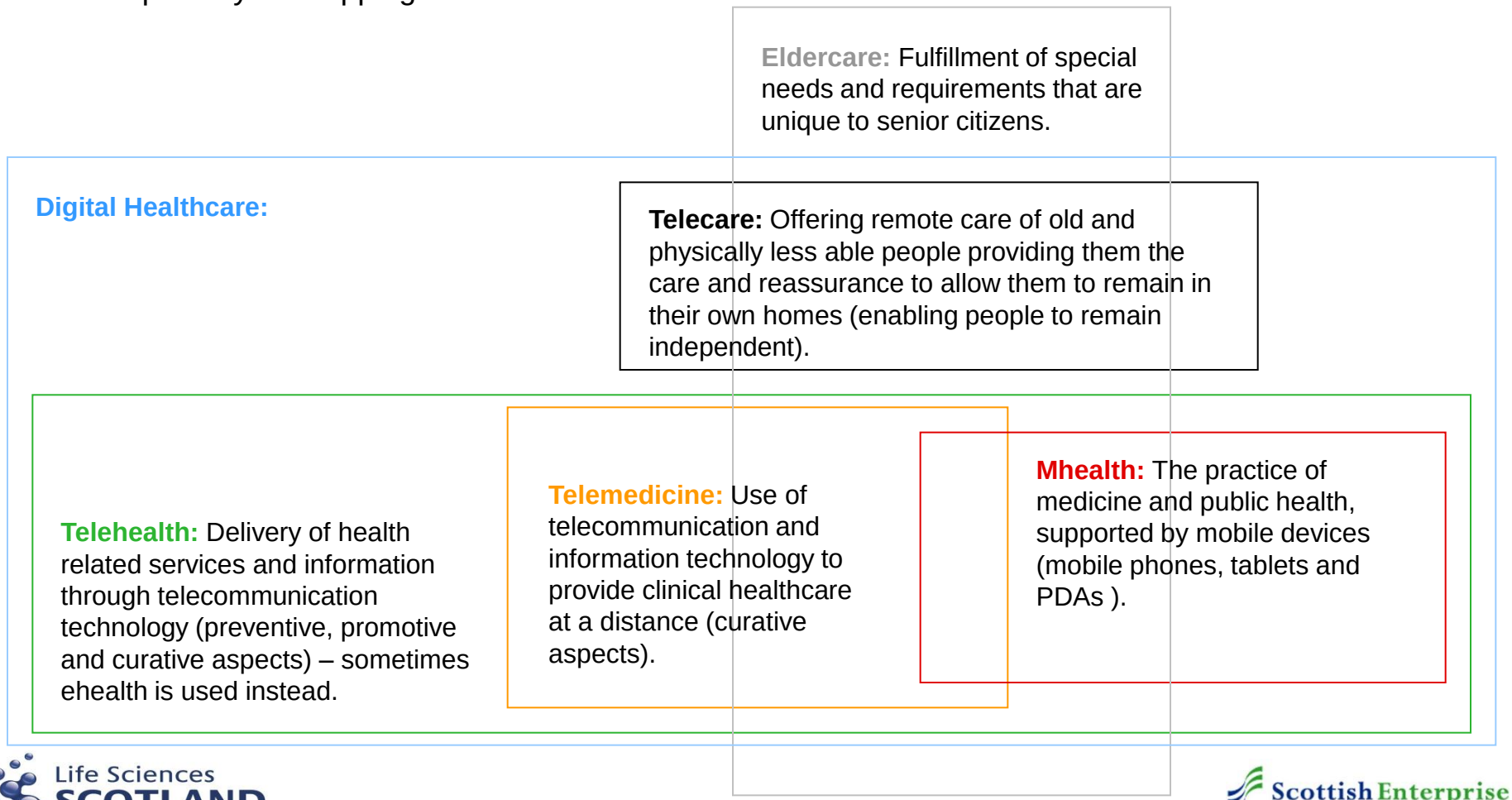
Digital Healthcare - Overview

- **Digital healthcare is the delivery of healthcare at a distance using information and communication technology**.
- It incorporates telehealth, telecare, telemedicine, remote clinical monitoring and supported self treatment.
- Digital healthcare products/services consist of two components: Hardware (monitors, devices, etc.) and communication technology (phone, broadband, etc.).

Definitions

- In the digital healthcare area terminology can be very confusing as different terms have partially overlapping definitions:



Markets that play into digital healthcare

- **Consumer electronics**: play a crucial role in the uptake and growth of mHealth services. .
- **Home safety:** is a broad industry, which includes security monitoring and safety monitoring. Technology rapidly evolving.
- **Health information technology:** is the management of health information and its secure exchange between consumers, providers, government and quality entities, and insurers. The growth of this area has surged in the US due to introduction of electronic health records.
- **Home Medical Equipment:** includes sensors and monitors which could be an Integral part of telehealth as long as the information is relayed to a physician using telecommunication technology.
- **Remote patient monitoring:** includes activity monitoring and cardiac telemetry. Telemetry use is reimbursed for prescribed short periods of time and solid growth expected as technology improves.

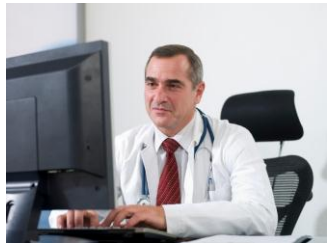
Digital healthcare – Product Evolution

- Digital healthcare products span a broad spectrum and can be categorized in three groups:

  – **1st generation products:** Non-connected, stand-alone, single purpose devices, such as glucose meters. They do not require data exchange and costs are generally covered by health insurance. These were covered as part of the previous home medical equipment section.

  – **2nd generation products:** Connected devices without interactivity, that send signals in one direction, for example pendant alarms. Provision by health insurance is not common.

  – **3rd generation products:** Connected devices with interactivity; bi-directional data-flow and broad functionality; patient-centric and not disease-specific; typically found in telemedicine.



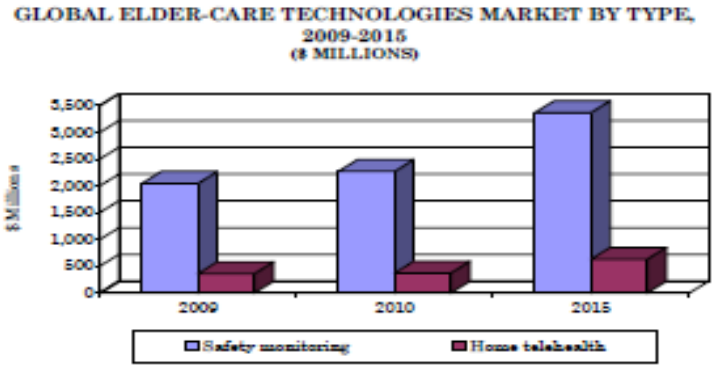
  Products are a “solution” made up by the **combination of devices and services**, sometimes from multiple providers but often proprietary systems.

  Many of the technologies that form this industry have their origin elsewhere and are adapted to serve the medical market; telecare products and services, for example, have been dominated by suppliers of the home security industry.

Markets

- The global market for **elder-care technology** products is worth approximately $2.6 billion today and should grow to about $4 billion in 2015, at a compound annual growth rate (CAGR) from 2010 to 2015 of 8.7%[1].
- **Safety monitoring technologies**, such as pendant alarms dominate this market and are valued at $2.3 billion today. They are expected to reach $3.4 billion by 2015, a compound annual growth rate of 8.2%[1].
- **Home telehealth technologies** are worth $371 million today and are expected to increase at a compound annual growth rate (CAGR) of 11.2% to reach $631 million in 2015[1].

- While defined conceptually, **the marketplace is mostly at a nascent stage** due to the lack of market penetration. This is particularly true for telehealth.
- The **telecare segment drives the growth in digital healthcare**: in the US, Canada and Europe it grows at five times the pace compared to the clinical segment.



Source: BCC Research

- The market is dominated by large multinationals: Honeywell and Cardiocom each have a 14% market share. This makes the market entry hard for new players, particularly SMEs.

[1] ***Technologies for Long-Term Care and Home Healthcare: Global Markets*, BCC Research, April 2010.**

Adoption Issues

- Key issues with telehealth are:
  - Currently in the UK most digital healthcare products in older people's homes (emergency buttons…) are provided by social services.
  - Most telehealth products would have to be provided by the NHS but are not on procurement lists because neither cost nor clinical efficiency are unambiguously proven.
  - This distinction between providers (social services, NHS) is a hindrance as telehealth and telecare systems should be integrated for optimal cost, operational efficiency and patient outcome.
  - The technology has not attracted a wider consumer market, probably due to a lack of awareness and an unclear value proposition.
  - Therefore companies are left in a no-mans land where NHS won't put their products on procurement lists and consumers won't buy them because of lack of awareness and cost.
  - Hospitals, technology companies, governments, insurances and doctors need to workout the business model (including performing trials to show efficacy and cost saving)
- It is expected that the telehealth market in the US and Europe will remain relatively stagnant for the next 2-3 years as the lack of re-imbursement is a serious barrier to adoption.
- Hospitals, technology companies, governments, insurances and doctors need to workout the business model (including performing trials to show efficacy and cost saving)

Market drivers (1)

- Demographic changes
  - –Population ageing presents public health challenges worldwide due to associated epidemiological changes, such as increased prevalence of chronic conditions (Long-term conditions account for 75% of NHS spending).
  - –Currently, this is more of a concern in developed countries: in 2009 21.4% of the population were 60 years and older; this is projected to rise to 32.4% by 2050.
  - –Developing countries are catching up fast: At present, only **8.5%** of the population are 60 years and older, in 2050, this is expected to be **22.5%.**
- Increased demands on healthcare services in the developed world
- Reduction of healthcare resources (money and people) and drive for evidence based cost-benefit
- Move towards a patient-centric approach to healthcare and outcomes-driven delivery of health services
- Healthcare providers aspire to move to disease prevention rather than treatment and crisis management
- Advancements in technology and improved methods of communication
- Growing place of technology in everyday life

Taken together, these trends all point to digital healthcare becoming increasingly important in the future. Moreover, there appears to be a policy consensus that future (integrated) health and social care will use digital healthcare routinely.

Restraints

Cost related

- Affordability of equipment and services
- Lack of clarity regarding reimbursement
- Lack of a business model for companies operating in this space
- Clinical cost-effectiveness not proven (particularly at scale)

Organizational

- Integration into existing healthcare practices
- Training and education

Technological

- Infrastructure and networks
- Data storage and management
- Connectivity
- Interoperability: many proprietary systems
- User-friendly design: patient-centric

Legal and practical

- Confidentiality, privacy, security
- Standards of practice
- Some products fall under jurisdiction of several regulators (regulation is lacking)
- Liability issues around home health care (is this the provision of a medical service?)

Technology Trends/Opportunities

Technological trends

- Medical devices become monitors
- Vital signs monitoring via wearable and skin-contact devices using mobile and wireless technologies
- Increased use of consumer electronics, such as televisions, computers and smart phones to support health and well-being
- Convergence (but dependent on interoperability)
- Electrically equipped pharmaceutical pills that sends signals from the inside of the patient's body to healthcare professional (Proteus Biomedical)

Opportunities:

- The homecare market offers opportunities for healthcare companies to produce connected portable monitoring equipment for home use.
- Advancements in mHealth will present opportunities for network operators.
- Digital healthcare in the clinical setting provides opportunities to system integrators, healthcare IT companies and service providers.
- New entrants to the market should partner with established players to offer package solutions.

Fit with Government Agenda and Funding (1)

- The Scottish Government has a long-standing commitment to implementing digital healthcare in Scotland. This commitment has given Scotland an edge in this field with a number of patients receiving telecare and telehealth through pilot projects. The DALLAS initiative (see funding) will further reinforce Scotland ‘s lead in this area.
- **The Telecare Development Programme** (TDP)
  - Started in 2006 and has supported the uptake of telecare with £20 million of funding.
  - Over 29,000 people received telecare using TDP funding.
  - The gross value of efficiency savings was approximately £48.4 million, mainly by avoiding unplanned hospital or care home admissions.
  - Almost part of mainstream service provision.
- **The Telehealth Programme**
  - Was separately established in 2006
  - At the pilot and trial stage
  - Pilots are supported by Scottish Centre for Telehealth (SCT) now part of NHS24.
  - SCT tasked with driving national telehealth solutions for stroke, paediatrics, COPD and mental health.

Fit with Government Agenda and Funding (2)

- Other organizations that support digital healthcare in Scotland include:
- **NHS24**: Since April 2011 NHS24 is the provider of telecare and telehealth in Scotland
- **Highlands and Islands Enterprise** (HIE): Remote healthcare, wellbeing and preventative medicine are both strategic themes HIE is focusing on.
- **The eHealth team** part of the Health Finance And Information Directorate of the Scottish Government. Its strategic objective is to support improvements in patient care and service performance. “The eHealth Programme aims to improve patient care through advances in technology, resulting in better access to health information, quicker test results for clinicians and joined-up GP and hospital services”.

Funding Initiatives

- There are also a number of programmes funded at the European and UK level:

- **Ambient Assisted Living (AAL) Programme**
  - Objective: “to enhance the quality of life of older people and strengthen the industrial base in Europe through the use of Information and Communication Technologies (ICT)”.
  - Initially set up for a duration from 2008 to 2013.
  - Total budget: €700M (50% from public organizations in 20 European Member States and the European Commission and 50% from private partners)

- **BBSRC Healthy Ageing Research & Technology Club**
  - BBSRC are working with partners on developing a proposal for this new club. If launched the club will support research projects of industrial importance to better understand ageing processes and influences on healthy ageing.
  - The club model is based on the set up of a joint fund from industry and the Research Councils. It supports innovative research projects within academia that address pre-competitive research challenges faced by club members.

Funding Initiatives: DALLAS

- **DALLAS (Delivering Assisted Living Lifestyles at Scale)**
  - UK wide programme representing a total investment of up to £23 million (£18m investment by the Technology Strategy Board and the National Institute for Health Research, £5m contribution from the Scottish Government, Highlands and Islands Enterprise and Scottish Enterprise)
  - DALLAS has established communities about 170,000 (including 55,000 in Scotland) to show how assisted living technologies and services can be used to promote wellbeing, and provide top quality health and care, enabling people to live independently – including a preventative approach.
  - The aim of the programme is to implement innovative service and technology for integrated health and social care at scale in the UK . This will provide the next stage of evidence showing the benefits of assisted living.
  - Scotland will host one of the communities. The project will be funded **£10 million over 3 years** (£5 from TSB- match funding by Scotland) **Scottish partners are: The** Scottish Government, Scottish Enterprise, Highlands and Islands Enterprise, and NHS24 (focusing on delivery).

SBRI

Strategic recommendations – Digital healthcare

- Several strategic actions would help accelerating the development of the digital healthcare area. These actions need to take place at industry, payer and government level:
  - Review payment systems for healthcare providers to favour outcomes rather than interactions.
  - Address lack of clarity regarding re-imbursement of technologies so that companies wanting to enter this field have a proper business model.
  - Develop internationally recognized and utilized standards for data protection and interoperability.
  - Encourage cross-sector partnerships, for example between healthcare providers and telecoms companies or involving government organizations and NHS.
  - Incentivize the uptake of home healthcare (might need new payment models to reflect ongoing disease management rather than one-off visits).
  - Improve infrastructure, particularly high-speed broadband.
  - Work out ways of incorporating digital healthcare into existing health provision work flows
  - Consider digital healthcare when planning/constructing new homes.
  - Define new ways of measuring/estimating economic impact. For instance, how to account for reduced time for carers (who are economically productive) or medical professionals.

Summary, Conclusions and Recommendations

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Summary

- The continuous increase of the older population expected over the next 40 years requires changes in current healthcare systems to allow such systems to remain economically viable.
- This growing segment of the population needs “a lifestyle design that enables individuals to optimise their ability to exercise independence; to enhance and maintain a quality of life and a sense of wellbeing that is acceptable to all”[1]. This is what assisted living services and products aspire to offer.
- The range of opportunities in the assisted-living market is vast and goes well beyond life sciences and health care spanning housing, finance, transportation, social inclusion and a variety of commercial offerings.
- Two life sciences markets that are essential components of the assisted living market are the home medical equipment and digital healthcare markets.
- The home medical equipment market covers durable equipment that is not useful in the absence of illness or injury and generally requires a physician’s prescription (Assistive devices, insulin pumps, respiratory aid products, dialysis equipment and monitors and sensors).
- The digital healthcare market consists of three broad categories of products:
  - 1st generation products are non-connected, stand-alone, single purpose devices (monitors and sensors). This category overlaps the home medical equipment market.
  - 2nd generation products are connected devices without interactivity that send signals in one direction,
  - 3rd generation products are connected devices with interactivity (bi-directional data-flow).
- Scotland has key strengths in both markets.

1 Adapted from DALLAS - Delivering Assisted Living Lifestyles at Scale, SBRI Competition for development contracts, June 2011

What's the Opportunity for Scotland?

Market Opportunity

- **Demographic changes are challenging current healthcare models and practices**. The continuous increase of the older population segment expected over the next 40 years requires changes in current healthcare systems to allow such systems to remain economically viable.
- This growing segment of the **population has expectations in terms of independent living and quality of life** that society needs to take into account.
- The range of **opportunities in the assisted-living market is vast** and goes well beyond life sciences and health care spanning housing, finance, transportation, social inclusion and a range of commercial offerings that can be adapted to this segment.
- **The market for new products and services in home medical equipment and digital healthcare is growing and expected to further increase as a business model is worked out by stakeholders and as policies are developed**. High hopes rest on the ability of digital healthcare technologies to decrease healthcare costs by not only addressing existing medical conditions (leading to less hospital admissions, less placement in care homes…) but also increasing preventative care..

Quick Impact & Economic Benefit

- The impact of these new products and services has been demonstrated in pilot projects. However much is expected from larger scale projects. The **Scottish DALLAS community** will hopefully help in further demonstrating some of the potential cost savings that Scotland could generate by expanding digital healthcare.
- The **opportunity for economic benefit is dual**: 1) digital healthcare technologies will increase the cost effectiveness of the healthcare system 2) development of these technologies and provision of associated services will boost economic development.

What's the Opportunity for Scotland?

Fit with Government Agenda

- Governments at the European, UK and Scottish levels are aware of the impending consequences of the ongoing demographic change. They are keen on finding economically viable approaches to maintain the standard of healthcare and well being of citizens. This explains the level of funding committed to the digital health care area within Europe, the UK and Scotland.
- The Scottish government has been very supportive of programmes in this area.

Overcoming the Commercialisation Barrier

- Several obstacles remain and restrain the development of digital healthcare: there is a need for both new policies (payments systems and reimbursement, business model for companies…) and technological/infrastructure improvements (broad band access, confidentiality, monitoring tools..)

Fit with Scotland's Academic and Industrial Base

- Scotland plays from strength to strength in the digital healthcare area: it has extremely strong academic research in the underlying discipline of informatics, a large base of med-tech companies including a number of innovative SMEs and several companies already focusing on the digital healthcare market. The fact that one of the DALLAS community will be set up in Scotland might play a catalyst role and propel Scotland ahead in this area.

Job Creation

- The adoption of digital healthcare should create opportunities and work for the above described companies resulting in significant job creation. While this will not only be true for Scotland but also for the UK and other developed countries, Scotland has certainly an edge in terms of its academic and industrial base as well as its early activity and proactive engagement in this area.

Further Details

- If you are interested in additional information about any of the areas covered within this document, please contact:

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